to his success in ferreting out the origin of these reflexes.

One of the most common reflexes reaching the stomach is a spasm of the pylorus, and in the light of our present knowledge of the physiology of this sphincter it is easy to understand its upsetting influence. One gets a most illuminating vision of some of the old functional disorders such as high acid gastritis, by reviewing the literature on duodenal regurgitation, and the regulation of the gastric acidity.

Boldereff's article is a very stimulating one. It helps us to see the complexity of clinical medicine, and shows how futile are attempts to control many gastric symptoms by local treatment and drug medication, when such symptoms are in reality due to some distant reflex upsetting the control of acid and other gastric secretions by disturbing the regurgitation of the alkaline duodenal contents through a functional pylorospasm.

The removal of an appendix or a gall bladder, the correction of constipation or some irritating pelvic disorder although apparently very remote, may through a reflex arc fully relieve distressing gastric symptoms by re-establishing the duodenal regurgitation.

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Physical Therapy

The Trend of Modern Medicine—Not so many years ago, after Virchow had infused into it a new spirit of investigation by his cellular pathology, and medicine was establishing itself on a scientific basis, physicians were satisfied to make a diagnosis. Treatment, if any, was more or less empiric. A correct diagnosis and a prognosis based on the experience gained from countless post-mortem observations was the desired end of consulting work. In the Vienna school at the time of Skoda and Rokitansky, it is said that the ideal patient was he on whom Skoda could make the diagnosis and Rokitansky could do the autopsy to verify the observations and opinions previously set down on the clinical chart. Even the great Osler, whose textbook meant so much to English-speaking medical students, would devote pages to pathology and diagnosis, but would dismiss therapy in a short paragraph.

Then followed the brilliant years in medical history when the seeds sown by Pasteur and Lister began to bear fruit. Modern surgery had arrived, and instead of studying post-mortem pathology the surgeon demonstrated that living pathology of which Moynihan so delightfully enlightened us in his classic essays and addresses. Surgery began to accomplish things undreamed of from a therapeutic standpoint, while pharmacologic therapy was content to use those remedies which had been in vogue so many years and whose virtue was too often empiric. Concomitant with the rise of scientific medicine came amazing progress in the fundamental sciences of chemistry, physics, and biology. Pasteur's contribution to bacteriology and Lister's to antisepsis were the early incentives for the search of so-called specific remedies on the part of chemist and pharmacologist.

For many years it has been apparent that there are individuals who are sick, but whose ailments yield very slowly or not at all to surgery or medicine. Orthopedists and neurologists who see many patients of this type have long used physical methods of therapy, such as massage, graduated exercise, or as some form of the various electric modalities. It remained for the recent war with its reconstruction of human wreckage to focus our attention on the value of these aids. Today, if we were to accept the statements that come to our desks from the jobber and manufacturer, no physician's office would be complete without one or more of the physical therapeutic appliances. These include machines built to give radiation of various types—x-ray, ultra-violet ray, or thermic ray—as well as high frequency machines that are used in diathermy. To this may be added radium, which any physician may procure in the form of radon and which he may apply by following written instructions, though he himself has had no experience or training in its use.

We owe much to the commercial interests in producing appliances which are reliable and easy to use. In their zeal for increased financial returns, these various products are placed in the hands of men who have neither the training nor the time to devote to this line of treatment. Commercial production and salesmanship have outstripped scientific investigation to such a degree that physical therapy is being heralded as the long-looked-for millenium. It is true that much of the therapy which we have found useful today is empirical in nature. The wave of enthusiasm for therapeutic endeavor along physical lines will be followed in a short time by a wave of discontent and the pendulum will swing to the other extreme unless the limitations are recognized. Anything worth while will stand, but that which does not rest on a firm scientific basis will be discarded.

Physical therapy, including therein x-ray, radium, and phototherapy, is a large field. It is as truly a specialty as surgery or internal medicine. Its opportunity for doing good is limitless, while its latent and invisible powers are great enough to be fraught with excessive danger to patient and practitioner alike, if wrongly applied. It requires years of careful clinical training to become an adept in deciding where one should be applied and where the other. Despite twenty-five years of radiation therapy by x-ray and radium we are far from the desired goal of perfection. No amount of research along purely physical lines will solve problems applicable to biology and physiology. Biological research and clinical experience must do this for us.

The American Medical Association has done organized medicine a great honor in creating a council on physical therapy, thereby giving to physical methods of therapy that recognition to which it is justly entitled. It has been a great boon to

1. Bulletin of the Battle Creek Sanitarium and Hospital Clinic, May, 1927.

the practitioner, showing him the conditions which experts have found will yield to physical methods.

The field has just been scratched. We know considerable about the massive destructive effects of x-ray and radium since the cancer problem has called our attention to the successful application in that disease. The effects of these agents in milder dosage where the immediate results are apparently stimulating rather than destructive is also interesting. This is especially true in the so-called "hypo" phases of endocrine disturbances. In other words these potent agencies are opening the fields that the endocrinologist has been attempting to rejuvenate by substitution therapy. Likewise in the various inflammatory conditions physiotherapy has been used long enough to show us that it competes with surgery in some cases. It will not replace surgery in all cases, but it will be a useful ally in restoring health to cells and tissues which have long been crippled by infection and exudation. The various skin conditions—acne, carbuncle, furuncle, tuberculosis of the glands, joints and peritoneum—are all amenable to physiotherapy. What the future has in store for us is still unknown, but what is known should be mastered so that physical methods will take their rightful place in the evolution of scientific therapy.

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Tropical Medicine

Clonorchis Infection—For two reasons the physicians in California are concerned with the disease called clonorchiasis. First, it is a fairly common parasite among the Chinese and Japanese residents of California. Second, immigrants subject to it are excluded under the immigration regulation forbidding admission to persons having "dangerous contagious disease." "Contagious" is interpreted to mean "communicable." In the matter of treatment, therefore, as well as in the question as to the rightful exclusion of this disease, the physicians in California have a direct interest.

The clonorchis, or liver fluke, so far as is known, only invades man in one way. The encysted larvae are ingested with uncooked fish, are released in the duodenum and make their way to the bile capillaries where the adult worms develop. If there is bile obstruction the pancreas may be invaded. These worms are leaflike or trematode worms, and damage resulting from their presence seems to be proportional to their number. E. C. Faust at Peking Union Medical College has recently made solid contributions to the knowledge of their life history. His work corroborates and extends the results of several excellent Japanese parasitologists, *e. g.*, Nagano and Katsurada.

Briefly, Faust finds that the ova of clonorchis, leaving the human host in the feces, are swallowed by certain species of fresh-water snails, provided the water is of sufficient warmth. In the snail, development takes place from a larva into a free-swimming cercaria which is very delicate, but which under proper conditions of warmth is swallowed by certain species of fish and encysts in their flesh. The common oriental use of dried, raw and insufficiently cooked fish transfers the infection to man. No other means of human infestation is known.

The longevity of the adult worms in man is calculated at from five to fifteen years at the maximum. It is to be noted, however, that Dunlop Moore has reported two cases where the infection persisted twenty and twenty-five years respectively after leaving China. In any case it is a self-limited disease, barring reinfection.

Inouye, a Japanese clinician, has classified the disease as follows: (*a*) mild cases with no evident symptoms; (*b*) secondary stage, with diarrhea, edema and hepatic hypertrophy; and (*c*) severe type aggravated by involvement of hepatic portal system. In Japanese patients he found jaundice rare, but noted 50 per cent with enlarged, smooth livers; 33 per cent with dull pressure pain over liver; 12 per cent with enlarged spleen; 15 to 40 per cent with ascites; 66 per cent with diarrhea; and only 4 per cent with normal stools. In China the disease as a rule is not considered serious or dangerous. As has been said, mass of infection is of primary importance, and exposure to conditions allowing frequent or constant reinfection is a major consideration in the gravity of the disease.

Treatment in general has been ineffective. However, in late years cases have been reported cured by G. C. Shattuck in Boston and Reed and Wyckoff in San Francisco, using courses of tartar emetic intravenously, preferably in association with neosalvarsan.

Two problems are evident in California with reference to clonorchiasis: (1) Is there danger of the disease spreading from patients already in California? (2) Is there danger of endemic foci being established in California? The answer to both questions is in the negative. Wayson notes that no infection has ever been proved in California snails, even though species presumably infectible are abundant. He also points out that California streams are cold, thus inhibiting and destroying these delicate larvae and cercariae. The intermediate cycle requires specialized molluscan and piscine hosts and the necessary warmth of pond waters. In Pacific Slope states the previous factors plus the good sewage disposal and the non-use of uncooked fish make it a practical impossibility for clonorchiasis to spread or gain endemicity on the Pacific Coast. No single case of such spread or transmission has yet been reported. These considerations lead one to question the justification of rating clonorchiasis as a "dangerous contagious disease," and as a sufficient ground for immigration exclusion.

That this conclusion is justified is shown by the very recent removal of clonorchiasis from the list of excludable diseases.

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